



**Massachusetts Bay
Transportation Authority**

Fare Transformation

Benefits, Efficiencies, and Future Opportunities

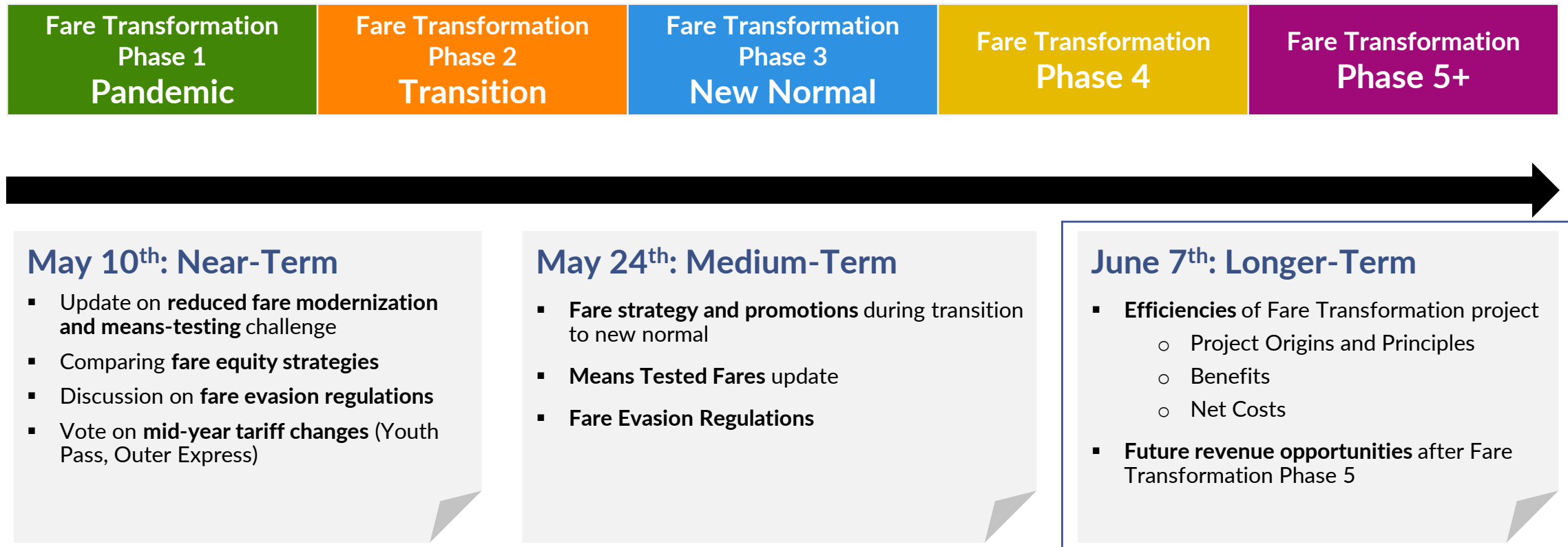
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The Fare Transformation program is well underway. Today is a continuation of our updates to the Board reviewing expected project benefits and future opportunities against costs.



Origins and Principles



An outdated legacy system, evolution of customer expectations, and transformation of the mobility ecosystem required a significant reinvestment in our fare system.

Current System



- Much of the system specification was written in 2001
- Discrepancy in systems and customer experience across transit modes
- Cumbersome process to change fare policy (3-6 months)
- Limitations to enforcing performance
- Frequent needs for investment in an aging system just to preserve existing capabilities
- Increasing operational costs and reliability challenges
- More work done in-house versus industry norm

Fare Transformation



- Meet customer expectations about self-service options and new ways to pay
- Address the need for a unified, integrated fare payment system
- Speed up bus and Green Line service through all door boarding
- Provide for a contracting method which provides for sustained performance and reinvestment

Changes Required and Enabled



Create a comprehensive fare system platform



Improve certainty around future performance costs



Replace outdated technology



Allow more rapid implementation of fare policy choices



Accountability for performance and investment



Strengthen intermodal transit integration and speed transit service



The Fare Transformation Program is the product of years of research and development and extensive public engagement, supported by continuous steering from the FMCB...



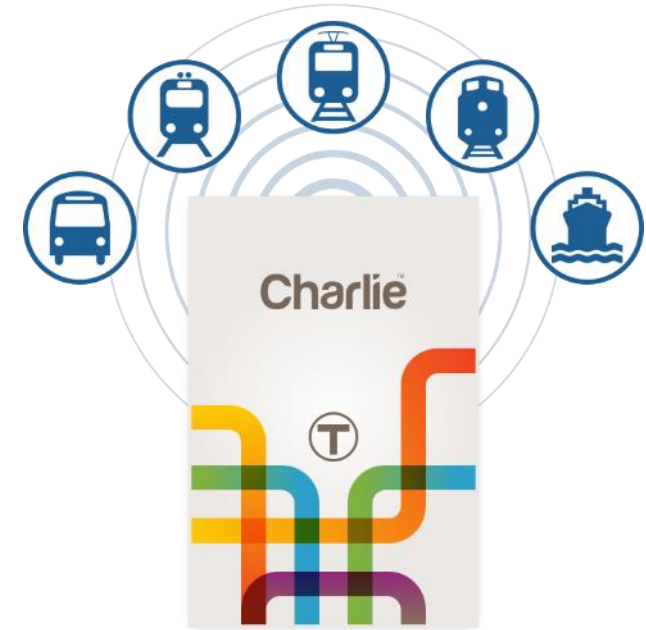
Benefits



... and is poised to provide the MBTA and its customers with a wide array of benefits and options for the future.













- **Better customer experience**
Making paying for transit easier and more convenient
- **Focus on core operations**
Removing cash from on board buses, Green Line trains, and Commuter Rail by supporting more options for customers to pay before they board
- **Support for the future MBTA**
Enabling future flexibility for fare policy innovation and integrations with other transit services and modes of transport
- **Equal access**
Offering expanded language support and accessibility improvements for seniors and people with disabilities
- **Improved revenue control**
Delivering fully reconciled, auditable and accurate revenue deposits and reports and controlling fare evasion
- **Upgraded assets**
Replacing worn equipment and improving system uptime and performance under performance-based contract



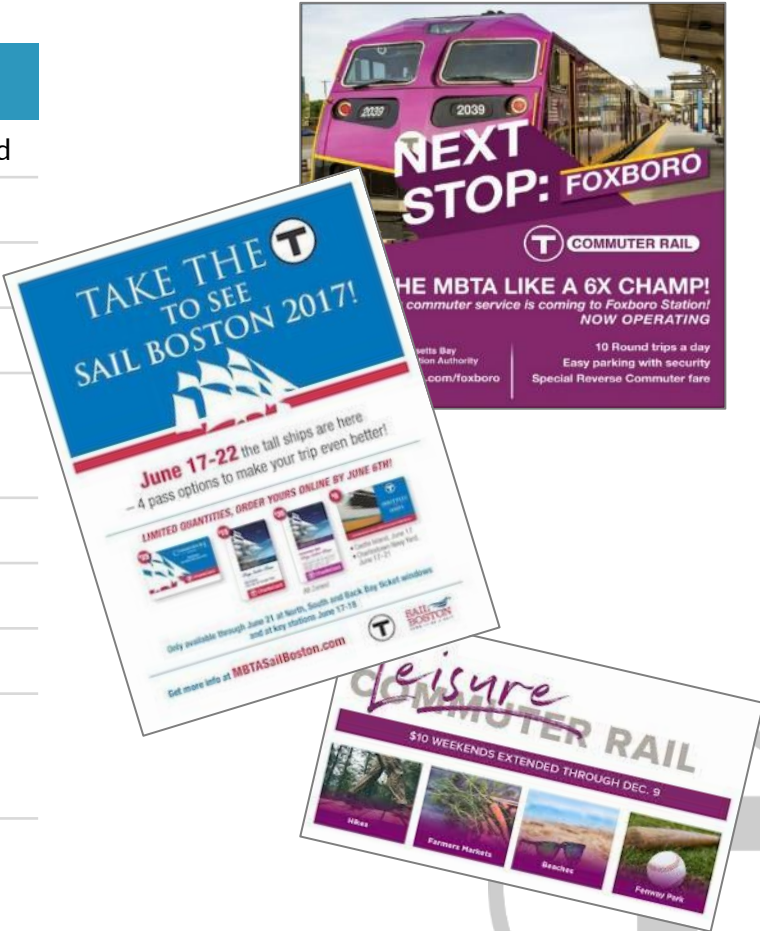
Fare Transformation also empowers the MBTA with greater fare policy flexibility which the MBTA has previously discussed.

Fare Transformation supports the future needs of the MBTA and its customers

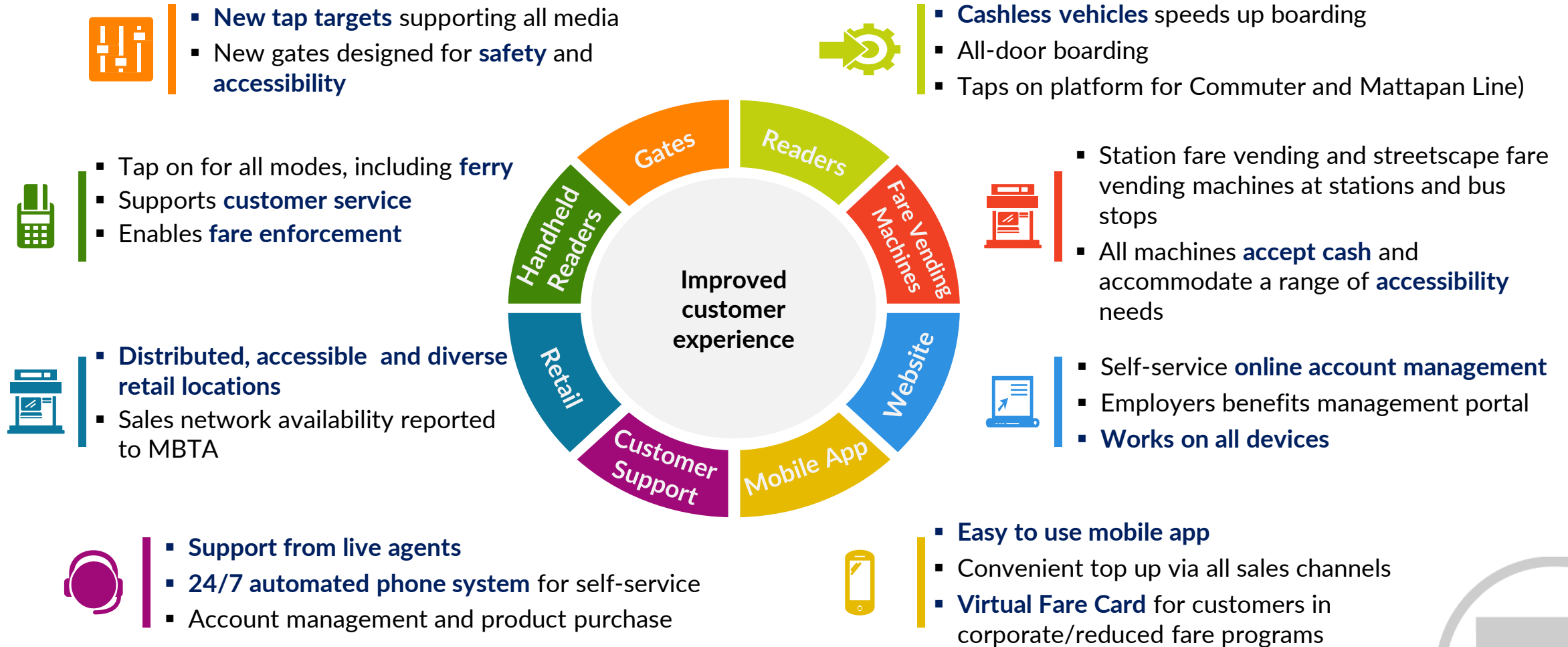
The new system will enable future changes to fare structures and the ability to integrate with other transit and mobility providers

| Fare options | Example of possible implementation* |
|--|---|
|  Intermodal transfers | Transfer between bus, subway, ferry and Commuter Rail and pay with your Charlie Card |
|  Time of day fares | Commute during off-peak hours and pay a lower fare |
|  Day of week fares | Ride the T on the weekend and pay a lower fare than on weekdays |
|  Reduced fare groups | Expand reduced fare programs and improve ease of application |
|  Best value / capping | Rather than buying a weekly pass, pay only for rides you take on the bus and subway until the value of a 7 Day Link Pass is reached and then ride for free for the rest of the week |
|  Zonal / distance based fares | Pay a different fare based on where your journey starts and ends |
|  Reverse-commute fares | Pay a lower fare when you travel outbound in the morning and inbound in the evening |
|  Rolling period passes | 30 day passes that can be purchased on any day instead of calendar month passes |
|  Transfer between carriers | Take a trip that involves both MBTA and Regional Transit Authority (RTA) services and pay for the whole thing with your Charlie Card, & future partnerships with micro-mobility, etc. |
|  Special event fares | Buy a special event pass to cover all of your travel to, from and during a special event |

* Examples are intended to illustrate system capabilities, MBTA plans a robust public process on any new fare structures



The Fare Transformation Program supports an improved customer experience through the entire journey, from planning and account management to end destination... and back.



The performance-based contract structure provides a robust framework for managing the performance of the System Integrator and provide the MBTA with more stable future operating costs for fare collection.

Stability of future operating costs

- Availability payment structure guarantees a stable level of operating and transaction costs, which may be reduced for poor performance



Performance Incentives

- Deductions of up to 100% of each operating availability payments for performance failures
- Capital and operating availability payments can be withheld if Full Service Commencement is delayed
- Key Performance Indicators for all areas of system operation

Contractual Remedies

- Contract clauses are in place in the event of a change of control
- In the event of a meaningful SI failure the MBTA can terminate the contract for default

The contract structure provides a level of guarantee and efficiency that the Current Fare System does not



The Fare Transformation Program also incorporates improvements to the Commuter Rail system, resulting in a best in-class model for payments and operations.

Integrates the customer experience of the Commuter Rail System into the rest of the MBTA's network

- Provides a single fare media solution for all modes, including Commuter Rail
- Consistent passenger experience – all modes require a tap
- Enables fare policy options of transfer discounts on Commuter Rail



Provides opportunities for operational improvements

- Better service planning from:
 - Detailed (but anonymized) origin and destination information
 - Integrated ridership data across modes – passenger transfers and mode usage
- Reduces workload of on-board train staff – conductors will be verifying payment, not handling cash and executing transactions

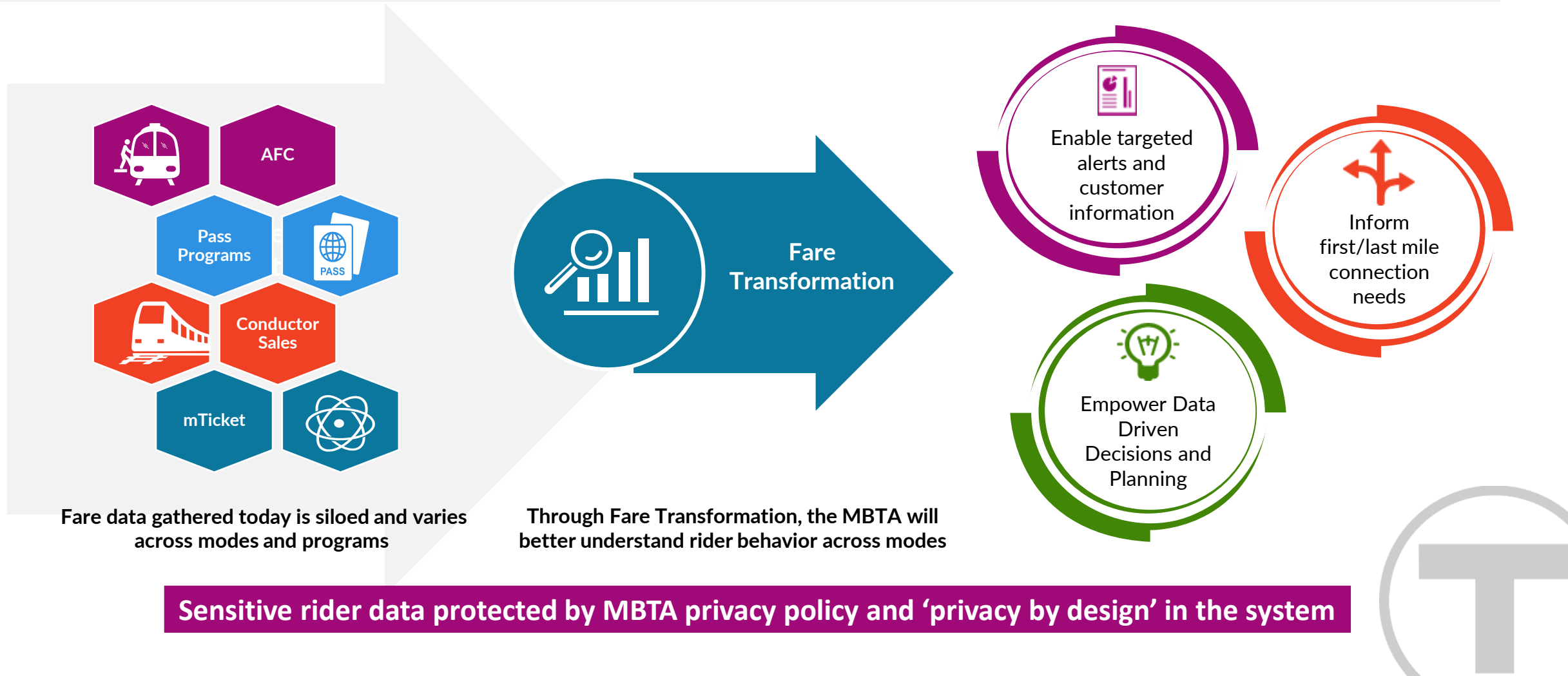
Potential Future Opportunities

- Underpins transformation of the rail system from a commuter rail network to regional rail system as part of an integrated network
- Opportunity to provide synergies with complementary services such as parking



Through Fare Transformation the MBTA will also benefit from new, integrated systems to better understand rider transit patterns and make data-driven decisions.

In order to better contextualize these benefits, it's important to understand what the Current Fare System currently provides by way of data, what the Fare Transformation System will deliver, and how that can be leveraged by the MBTA...

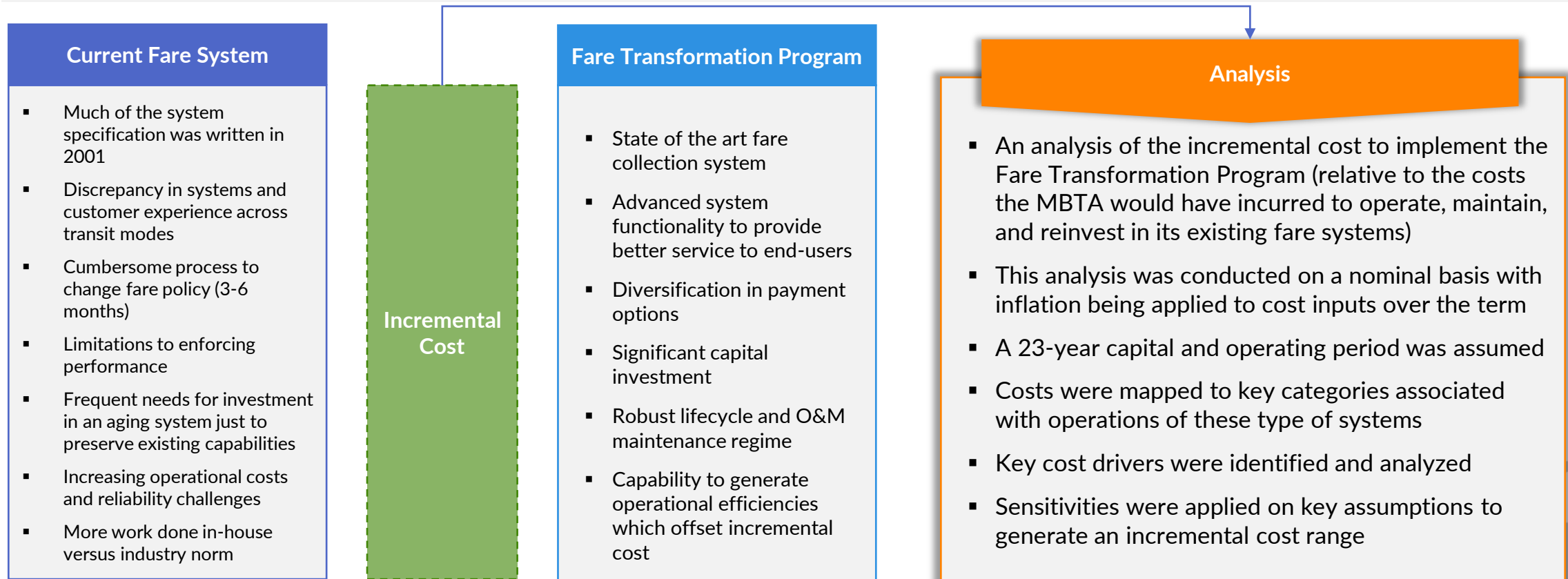


Net Costs

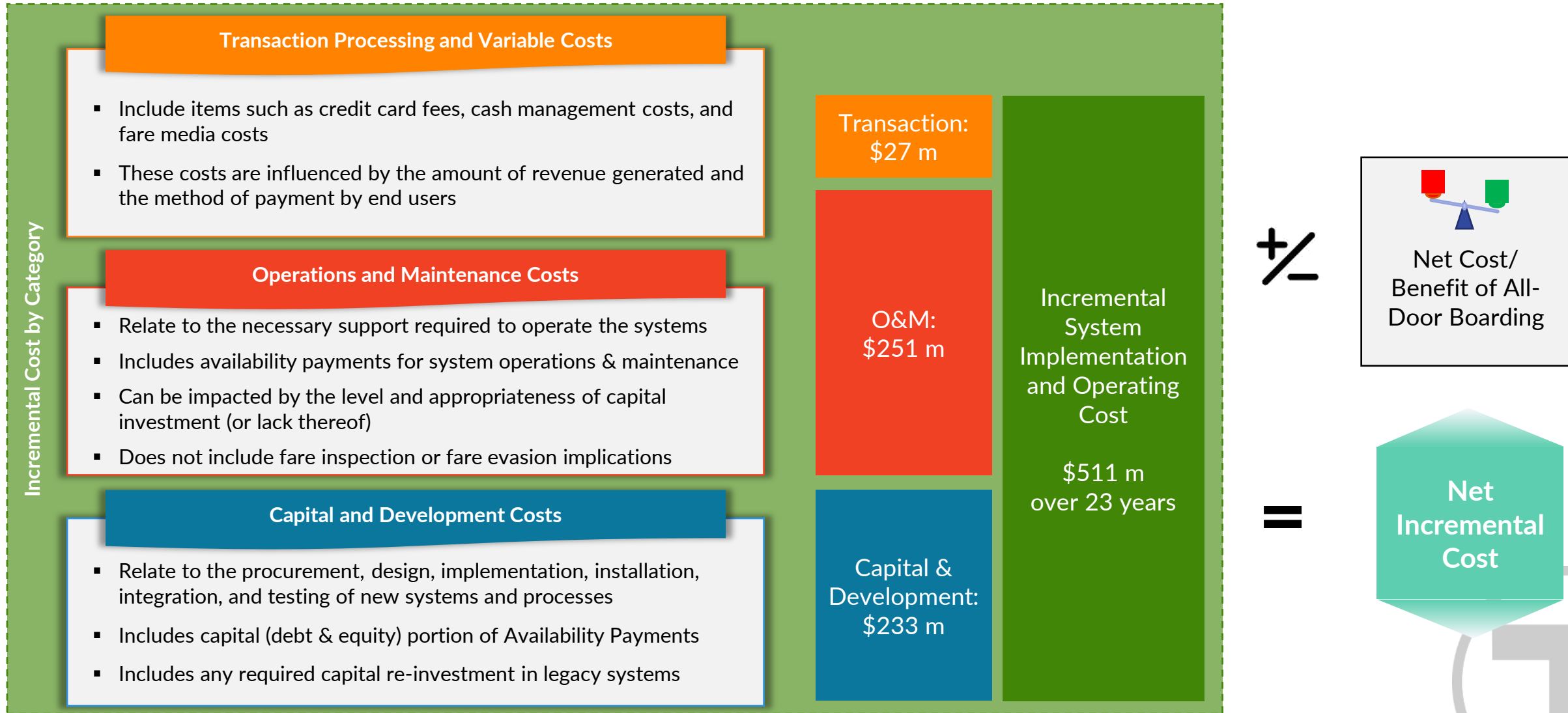


Although the Fare Transformation Program will provide a range of tangible benefits and flexibility to the MBTA, there is an incremental cost associated with implementation.

The MBTA has analyzed the incremental cost between continuing the basics of its current fare system and implementing the Fare Transformation Program (which encompasses all activities associated with making Fare Transformation possible, not just the Cubic contract)...

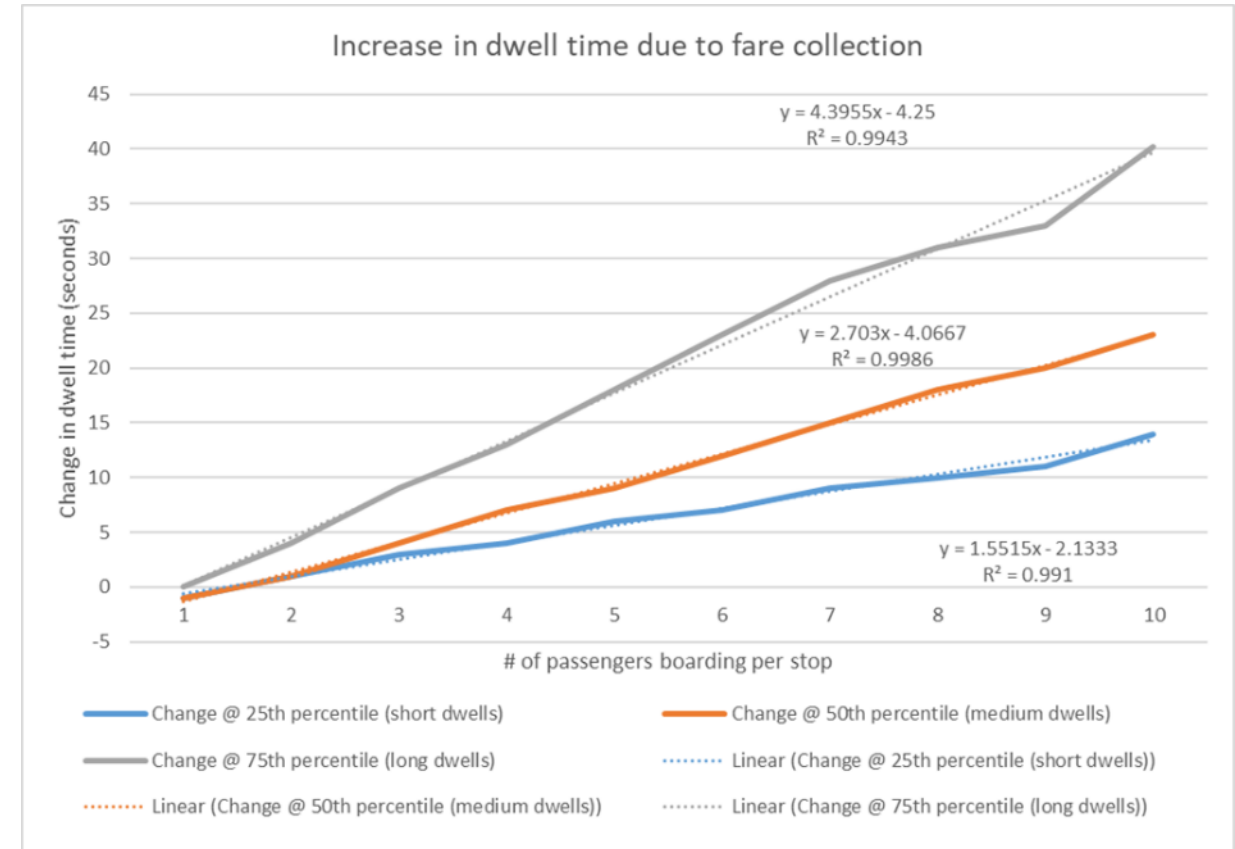


This incremental cost to realize all the benefits of Fare Transformation can be viewed through the lens of three primary cost categories, which capture the broad categories of investment underpinning the implementation and operation of the Fare Transformation Program versus those which would have been necessary with just the current fare system.



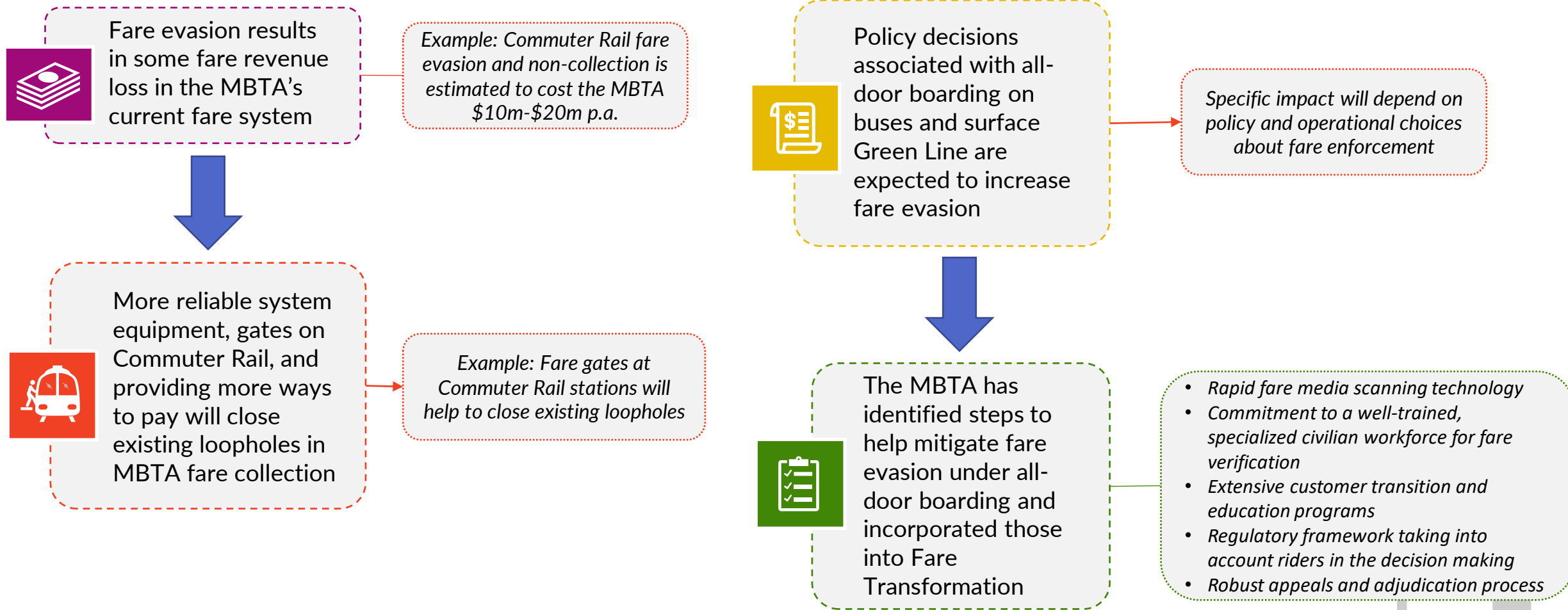
The new fare payment system enables all-door boarding, which translates effectively into operating efficiencies that the MBTA can then use, if possible given financial constraints, to deploy additional transit service

- Moving to a new fare system that features all-door boarding and takes cash transactions off vehicles is expected to reduce the amount of time vehicles spend at stops (dwell time)
- Aside from speeding up individual riders' trips, this savings should reduce overall vehicle cycle times
- Impact will vary by route and stop, and time of day, but will be greatest during peak periods and at the busiest stops
- For bus, preliminary estimates suggest at least a 4% reduction in cycle times systemwide.
- Conservatively, this analysis also suggests at least a 2.4% reduction on the Green Line.
- **If future financial constraints allow, the MBTA can redeploy these cycle time reductions as additional transit service as the efficiencies are realized. Increasing bus and Green Line service by that extent *without* all-door boarding would require capital investment and an increase in annual operating costs.**

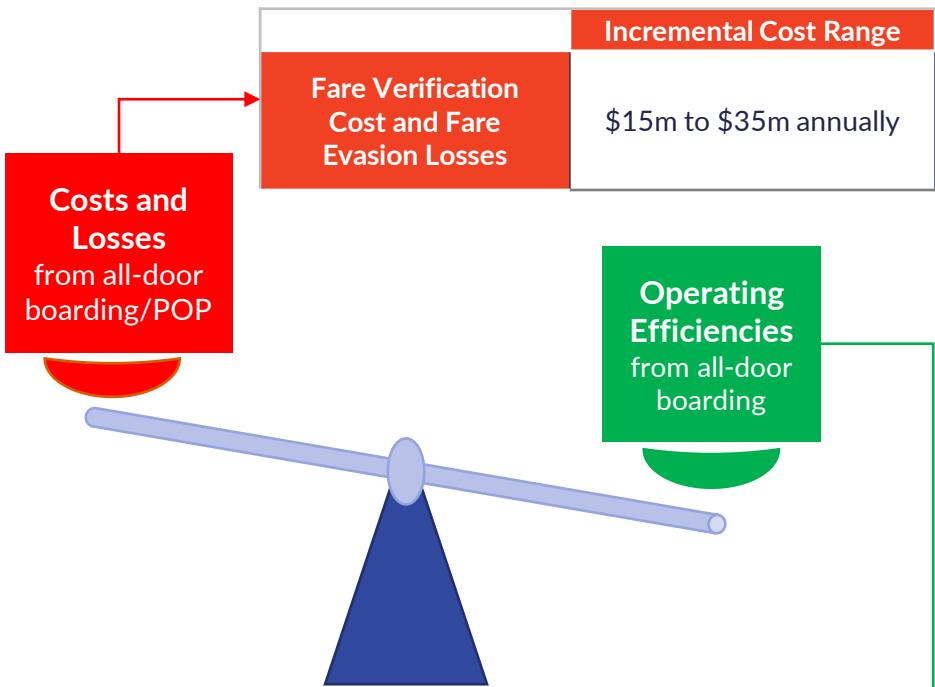


To estimate savings, this compares bus dwell times from 7/6/20 – 7/17/20 (when no fares were collected) with dwell times from 7/20/20 – 7/31/20 (when fare collection resumed) using data collected from the Automated Passenger Counter (APC) system.

Fare evasion is a risk that must be managed at all transit agencies, and Fare Transformation is providing additional tools to mitigate evasion even as the MBTA moves to all-door boarding on buses and trolleys



The net incremental cost associated with Fare Transformation will be driven by future policy decisions around fare evasion regulations and fare verification.



| | Potential Value of Operating Efficiency | Frequency |
|----------------------------------|---|-----------|
| New Vehicles (bus) | ~\$48m | One-time |
| Annual Vehicle Replacement (bus) | ~\$5m | Annual |
| Annual Operating Costs | ~\$19m bus ~\$4.6m Green Line | Annual |

Efficiencies Analysis

- Without Fare Transformation and all-door boarding, increasing bus and Green Line service by the same degree enabled by the project would require major capital investment and a significant increase in annual operating costs
- The value of those efficiencies were estimated in the same manner used to present costs of incremental service to the FMCB in May re: means tested fares and free bus pilots
- These efficiencies can go some way to offsetting the incremental costs associated with the Fare Transformation Program, though they are difficult to calculate
- Net cost/benefit from all-door boarding will depend on future decisions, including around fare evasion regulations and the size of the fare verification team, and can range from being a significant cost, a wash, or a significant financial benefit**

Incremental System Implementation and Operating Cost

+/-

Net Cost/
Benefit of All-Door Boarding

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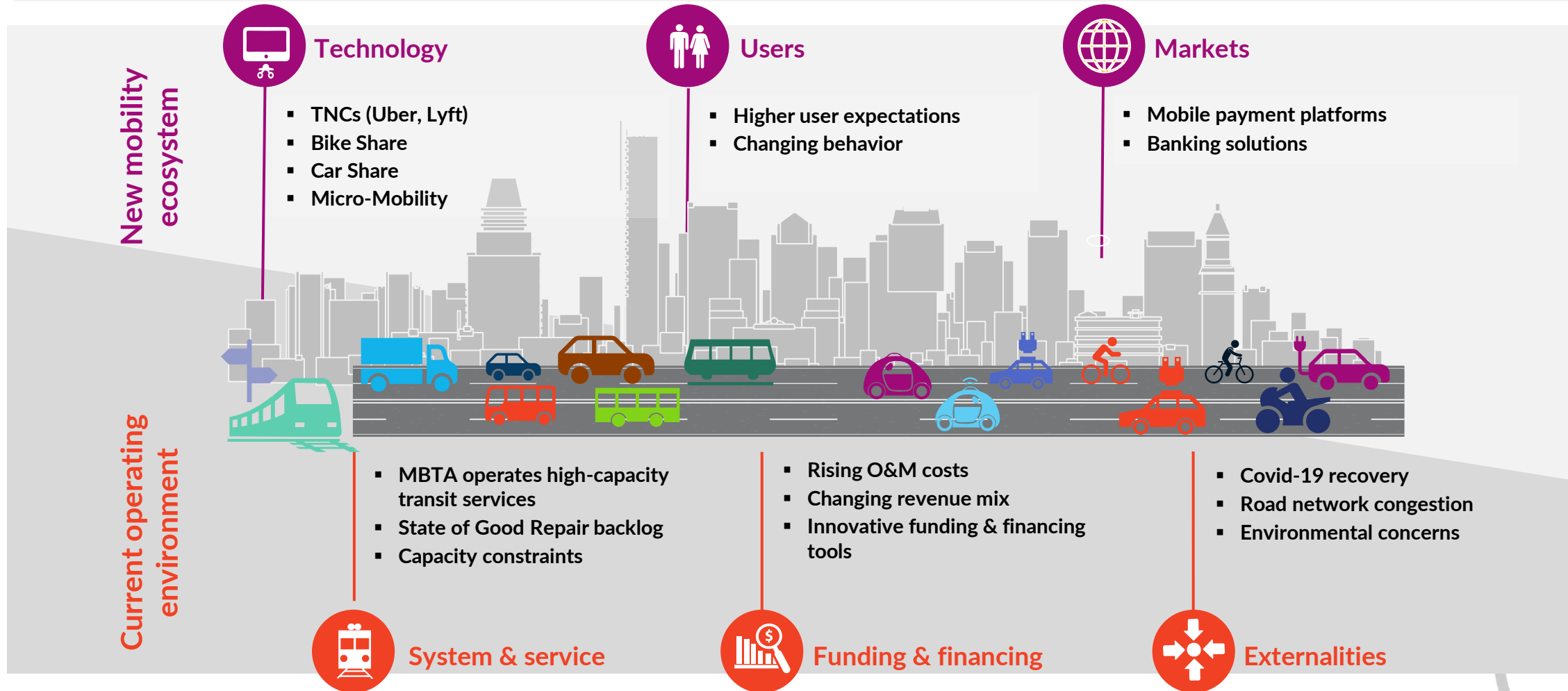
Net Incremental Cost



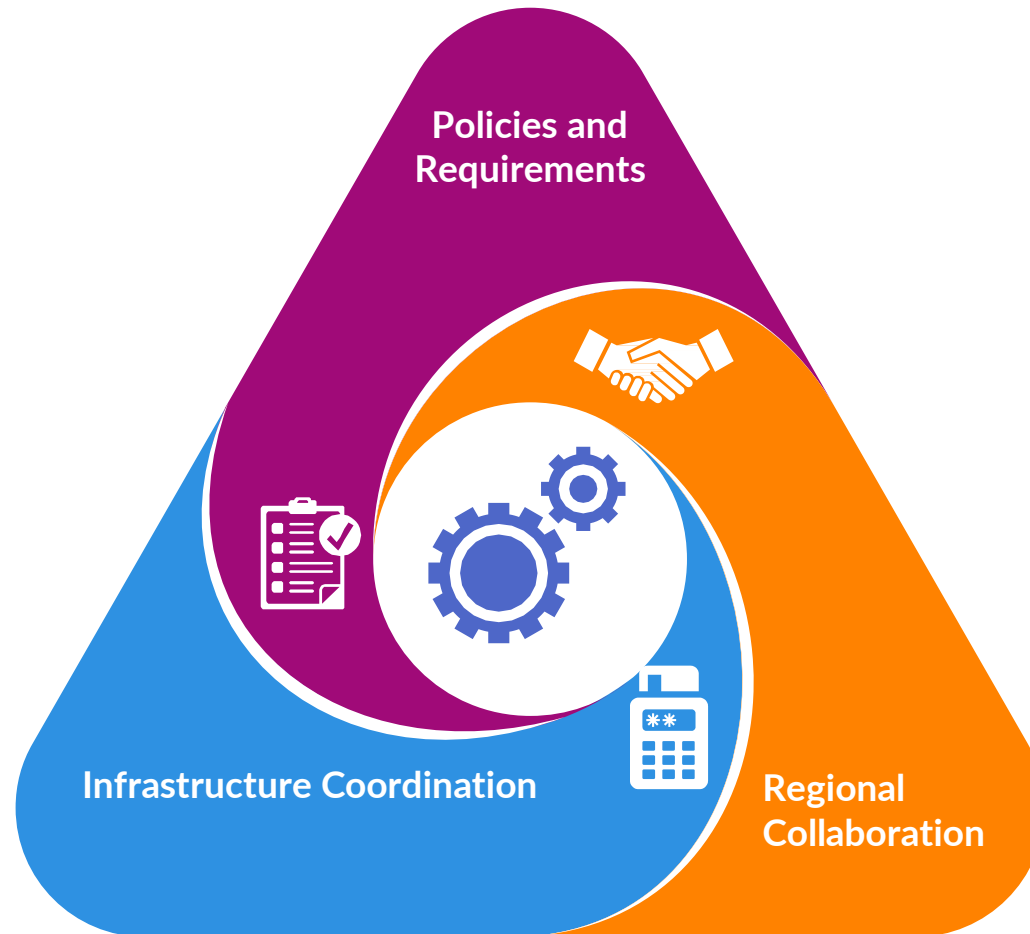
Future Opportunities

Emerging providers and evolving customer needs are quickly changing the mobility landscape across the Commonwealth...

The MBTA faces changes brought on by the new mobility ecosystem



... close coordination and collaboration will be vital to meet the evolving mobility needs of the Commonwealth...

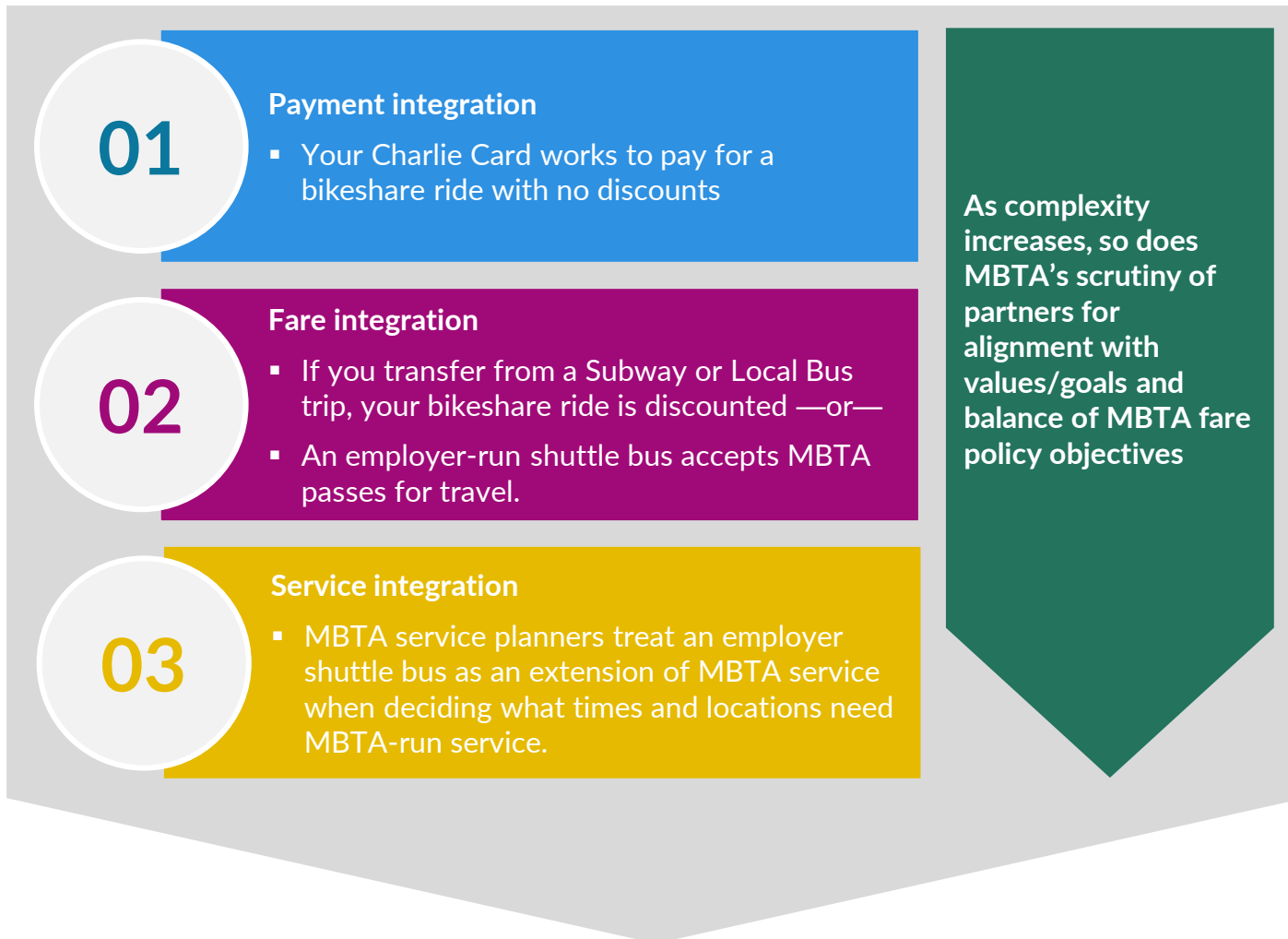


Possible Future Goals

- Expand transportation options for underserved groups
- Improve safety on our roadways
- Reduce air pollution and promote sustainable mobility
- Coordinate the efficient use of shared space
- Build and foster healthy communities
- Increase transit ridership and/or revenues



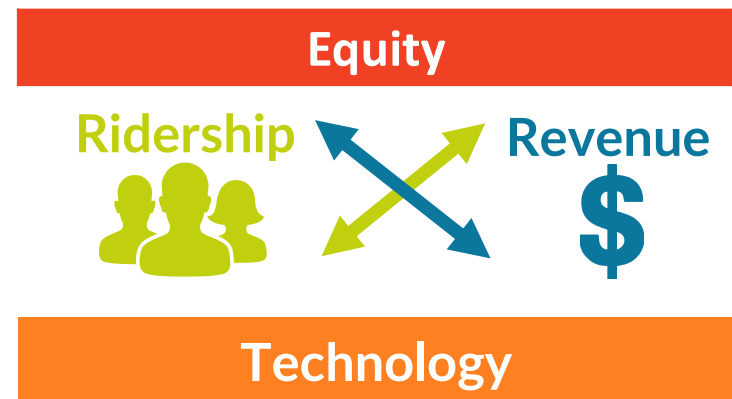
... and there are varying degrees of integration that the Fare Transformation Program will enable, all of which further support existing and potential future policy objectives.



Fare policy objectives

- Raise revenue
- Improve service and customer experience
- Advance social, equity, environmental, and regional economic goals

FMCB, December 2015



The MBTA will return to the Board in the future to define principles and goals of around Payment Platform Integration as the Fare Transformation program is delivered...

While the MBTA Fare Transformation process continues over the next several years, to support and define the MBTA's integrated fare platform in the mobility marketplace, the MBTA will...

